

What is claimed is:

1. A semiconductor wafer position detecting system comprising:
a chuck plate having a wafer supporting surface, the wafer supporting surface having one or more holes formed therein;

5 a fluid line connected between a lower portion of each of the holes and a fluid flow device;

one or more valves in communication with the fluid line to control fluid flow in response to an opening/closing control signal;

a sensor provided on the fluid line to detect a state of fluid;

10 an output device for outputting signals in response to an output control signal; and
a controller for selectively applying an opening/closing control signal and an output control signal to the valve and output device, and detecting the position of the wafer by a measurement signal applied from the sensor.

15 2. The system as claimed in claim 1, wherein the chuck plate wafer supporting surface further includes one or more guide grooves that communicate with the upper portion of each of the holes.

20 3. The system as claimed in claim 2, wherein the guide groove is formed within the region that is overlaid by wafers placed in a predetermined position on the chuck plate.

4. The system as claimed in claim 3, wherein the guide grooves are arranged in a radial direction or spiral direction.

25 5. The system as claimed in claim 3, wherein the guide grooves are concentric relative to the center of the wafer position.

6. The system as claimed in claim 4 or 5, wherein the guide grooves include radial, spiral, and circumferential grooves.

30 7. The system as claimed in claim 3, wherein the fluid line includes the guide grooves.

8. The system as claimed in claim 1, wherein the sensor is a pressure gage.

9. The system as claimed in claim 1, wherein the sensor is a flowmeter line.

10. The system as claimed in claim 1, further comprising one or more optical
5 sensors provided above and the chuck plate where the edge of wafer is placed to thereby
detect the position state of the edge of wafer and to output the resultant signal to the
controller.

11. The system as claimed in claim 10, wherein the chuck plate is rotatable and
10 connected to a rotational driving device for rotating the chuck plate in response to a rotational
control signal selectively outputted from the controller.

12. The system as claimed in claim 1, wherein the output device includes of one
or more selected from the group consisting of an audible alarm, a lamp outputting a light
15 signal, a monitor displaying the position state of wafer, and a switching part for selectively
cutting off an electric power applied to each of the elements of the system in response to a
signal generated by the controller when a wafer is abnormally placed.

13. The semiconductor fabricating facility of using a wafer position detecting
20 system, comprising:

a chamber provided with an opening/closing apparatus for opening or closing the
chamber in response to an opening /closing control signal;

a chuck plate rotatably mounted in the chamber, and having a wafer supporting
surface with one or more holes formed therein;

25 a rotational driver connected to the chuck plate to rotate the chuck plate in response to
a rotational control signal;

a fluid line communicating with each of the holes to form a fluid path;

a valve provided on the fluid line to control flow of fluid in response to a fluid flow
control signal;

30 a sensor communicating with the fluid line to detect a state of fluid;

an output device for outputting in response to an output control signal;

an optical sensor located above the chuck plate to detect the position state of the edge
portion of wafer; and

a controller for receiving signals from the sensor and optical sensor to detect the position of the wafer, transmitting the resultant signals to the output device to thereby output a rotational control signal and a fluid flow control signal to the rotational driving means and valve.

5

14. The facility as claimed in claim 13, wherein the chamber is further provided therein with a vacuum forming apparatus for forming a vacuum state thereof.

15. A wafer position detecting method comprising the steps of:

10 providing a chuck plate formed with at least one or more holes in a surfacethereof on which a wafer is supported; a fluid line communicating with a lower portion of each of the holes; at least one or more valves provided on the fluid line to control fluid flow in response to an opening/closing signal; a sensor provided on the fluid line to detect a state of the fluid; an output device for outputting in response to an output control signal; and a controller for selectively applying an opening/closing signal and an output control signal to the valve and output device, and detecting the position state of wafer by a measurement signal applied from the sensing means, comprising the steps of:

placing a wafer on the chuck plate;

controlling fluid to flow through the fluid line;

20 detecting a pressure or a fluid flow state in the fluid line;

checking a contact state and position of the wafer on the chuck plate according to whether a measured value is within a predetermined range to control fluid flow through the valve; and

25 outputting through the output device information including the measured values of the pressure or fluid state, set values, and probe gas supplied state.

16. The method as claimed in claim 15, the wafer position detecting system further comprising at least one or more optical sensors provided above the chuck plate to detect the position of the edge of wafer, the method further comprising the step of detecting a position of the edge of wafer by the optical sensor prior to the step of checking the position of wafer.

17. The method as claimed in claim 16, wherein the wafer position detecting system further comprises a rotational driving apparatus to rotate the chuck plate, and further

comprising the step of detecting a position of the edge of wafer placed on the chuck plate by the optical sensor.

18. The method as claimed in claim 15, further comprising the step of controlling
5 a fluid flow by the valve when the wafer is improperly placed.

10027641-121901
TOP SECRET